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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/457,926	12/08/1999	BURTON G. CHRISTENSEN	P-061-R2	8221

27038 7590 11/17/2003

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EXAMINER	
BAKER, MAURIE GARCIA	

ART UNIT	PAPER NUMBER
1639	29

DATE MAILED: 11/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
09/457,926	Christensen et al
Examiner	**Art Unit**
Maurie G. Baker, Ph.D.	1639

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *THREE* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on *Jul 15, 2003* .

2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) *41-46, 49-51, 53-55, 57, and 58* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *41-46, 49-51, 53-55, 57, and 58* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Please note: The number of Art Unit 1627 has been changed to 1639. Please direct all correspondence for this case to **Art Unit 1639**.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants submission filed on July 15, 2003 has been entered.

2. No claims were amended, cancelled or added in the submission filed on July 15, 2003. Therefore, claims 41-46, 49-51, 53-55, 57 and 58 are pending.

3. Applicants election of species carries over to the prosecution in this continued examination case. The art rejection over the elected species has been withdrawn (see paragraph 4 below). Thus the search was expanded to non-elected species. No art was found that reads on the claims and thus all species have been searched; claims 41-46, 49-51, 53-55, 57 and 58 are therefore examined on the merits in this action. Note that a new rejection under 35 USC 112 is set forth in this action.

Status of Rejections & Response to Arguments

4. The previous rejection under 35 U.S.C. 103(a) is withdrawn in view of applicants arguments, which were found persuasive. Specifically, applicants arguments point out that portions of Boeckh teach that "vancomycin and ceftazidime should be administered in separate solutions and at differing rates" (see, e.g. Response, page 21) and importantly, applicants cite the Physicians' Desk Reference (Response, page 22) that demonstrates that "vancomycin solutions were incompatible with certain other drugs, including ceftazidime". However, a ***new*** rejection based on these arguments is set forth below (see paragraphs 5-6).

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 41-46, 49-51, 53-55, 57 and 58 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

There are many factors to be considered when determining whether there is sufficient evidence to support a determination that a disclosure does not satisfy

the enablement requirement and whether any necessary experimentation is "undue". These factors include, but are not limited to:

(1) the breadth of the claims;
(2) the nature of the invention;
(3) the state of the prior art;
(4) the level of one of ordinary skill;
(5) the level of predictability in the art;
(6) the amount of direction provided by the inventor;
(7) the existence of working examples; and
(8) the quantity of experimentation needed to make or use the invention based on the content of the disclosure.

See *In re Wands*, 858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

The breadth of the claims and the nature of the invention: The claims are drawn to compounds of formula L' – X – L" where the L' moiety is a beta-lactam antibiotic, the L" moiety is vancomycin or its aglycone and X is a linker linking the moieties. This represents broad scope. The nature of the invention is pharmaceutical use of compounds of formula L' – X – L" as anti-bacterial agents.

The state of the prior art and the level of predictability in the art: The state of the art (organic & medicinal chemistry) at the time of filing was such that the *use* of the claimed compounds containing a beta-lactam antibiotic moiety and vancomycin or its aglycone would not be predictable. To satisfy the enablement requirement, applicant must teach how to make ***and*** use the full scope of the claimed invention.

In the Response filed July 15, 2003, applicant argues against the obviousness of the instant invention, pointing out that the previously cited Boeckh reference teaches that "vancomycin and ceftazidime should be administered in separate solutions and at differing rates" (see, e.g. Response, page 21).

Importantly, applicants cite the Physicians' Desk Reference (Response, page 22) in their arguments, which demonstrates that "vancomycin solutions were incompatible with certain other drugs, including ceftazidime" (a beta-lactam antibiotic). Applicant argues that due to these factors, one of ordinary skill would not be motivated or have an expectation of success in using compounds containing vancomycin and a beta-lactam in the covalently linked, 1-to-1 ratio as claimed (see, e.g. Response, page 14, bottom – page 15, top; Section C on pages 21-22; page 24 and page 25). Thus, for these reasons, since the instant claims are drawn to physically linked dimers of vancomycin and a beta-lactam, it would not be predictable that the claimed compounds would have any biological activity.

The level of one of ordinary skill: The level of skill would be high, most likely at the Ph.D. level. However, such persons of ordinary skill in this art, *given its unpredictability*, would have to engage in undue (non-routine) experimentation to carry out the invention as claimed.

The amount of direction provided by the inventor and the existence of working examples: Applicants have not provided ***any*** data on the activity of the claimed compounds. In fact, there is no activity data provided in the instant specification for any of the compounds therein. Only generalized procedures for testing the compounds are cited in the instant specification. Thus, based on the teachings of the Boeckh reference and the Physicians' Desk Reference cited by applicants, it would not be predictable that the claimed compounds would have any activity whatsoever. In the Response filed July 15, 2003, applicant states that the

"presently claimed invention was contrary to accepted wisdom in the art" (page 21); that one of ordinary skill would not have thought a molecule combining vancomycin and a beta-lactam "would be physically stable enough to be useful" (page 22); and that flexibility in dosing of vancomycin and ceftazidime is required (i.e. ratios differing from a strict 1-to-1 ratio; pages 24-27). Since there are no working examples to demonstrate the use of the claimed invention, and applicant admits on the record that the "presently claimed invention was contrary to accepted wisdom in the art", the use of the claimed compounds would clearly be unpredictable.

The quantity of experimentation needed to make or use the invention based on the content of the disclosure: The instant specification does not provide to one skilled in the art a reasonable amount of guidance with respect to the direction in which the experimentation should proceed in using the full scope of the claimed compounds due to the deficiencies described above. Note that there must be sufficient disclosure, either through illustrative examples or terminology, to teach those of ordinary skill how to make and use the invention as broadly as it is claimed. *In re Vaeck*, 947 F.2d 488, 496 & n.23, 20 USPQ2d 1438, 1445 & n.23 (Fed. Cir. 1991). Thus, due to the inadequacies of the instant disclosure, it would require undue experimentation to carry out the invention as claimed.

Status of Claims/ Conclusion

7. No claims are allowed.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maurie Garcia Baker, Ph.D. whose telephone number is (703) 308-0065. The examiner is on an increased flextime schedule but can normally be reached on Monday-Thursday and alternate Fridays from 9:30 to 7:00.

9. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew J. Wang, can be reached at (703) 306-3217. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0196.

Maurie Garcia Baker, Ph.D.
November 3, 2003